

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 July 2004 (22.07.2004)

PCT

(10) International Publication Number  
WO 2004/060910 A2

(51) International Patent Classification<sup>7</sup>: C07K (US). CYPHER, Maria [US/US]; 27323 Barrington Street, Madison Heights, MI 48071 (US).

(21) International Application Number: PCT/US2003/039873 (74) Agent: LIVNAT, Shmuel; Venable LLP, P.O. Box 34385, Washington, DC 20043-9998 (US).

(22) International Filing Date: 16 December 2003 (16.12.2003) (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

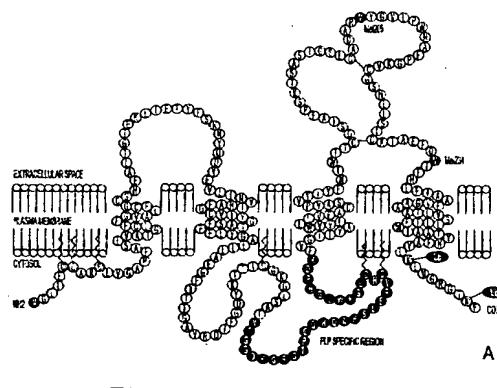
(30) Priority Data: 60/433,573 16 December 2002 (16.12.2002) US

(71) Applicant (for all designated States except US): WAYNE STATE UNIVERSITY [US/US]; 656 W. Kirby, Detroit, MI 48202 (US).

(72) Inventors; and (75) Inventors/Applicants (for US only): CARLOCK, Leon [US/US]; 7196 Glengrove Drive, Bloomfield, MI 48301

[Continued on next page]

(54) Title: BIOACTIVE PEPTIDES AND UNIQUE IRES ELEMENTS FROM MYELIN PROTEOLIPID PROTEIN PLP/DM20



(57) Abstract: Three novel low molecular weight (LMW) polypeptide fragments of a proteolipid protein human PLP/DM20 are designated PIRP-M, PIRP-L and PIRP-J, and are growth factors for oligodendrocytes with anti-apoptotic activity. They are encoded by mRNA from an IRES. Fusion polypeptides of such a LMW polypeptide, DNA encoding the LMW polypeptide and fusion polypeptide, expression vectors comprising such DNA, and cells expressing such polypeptides, or pharmaceutical compositions thereof, are useful for stimulating neural stem cell differentiation, maturation along the oligodendrocytic pathway and proliferation of oligodendrocytes or precursors. These compositions can protect oligodendrocytes (and nonneuronal cells) from apoptotic death. Thus, the present composition is used to treat a disease or condition in which such differentiation, maturation and proliferation or inhibition of cell death, including remyelination or stimulation of oligodendroglia or Schwann cells, is desirable. Disorders include multiple sclerosis, trauma with Parkinson's-like symptoms, hypoxic ischierria and spinal cord trauma.

